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WATER SUPPLY OUTLOOK COLORADO AND NEW MEXICO

FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

WILLIAM AS OF WHILLIAM March 1, 1981



U.S. DEPARTMENT of AGRICULTURE * SOIL CONSERVATION SERVICE

Collaborating with

COLORADO STATE SOIL CONSERVATION BOARD STATE ENGINEER of COLORADO and STATE ENGINEER of NEW MEXICO

Issued by

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Report prepared by

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SOIL CONSERVATION SERVICE SNOW SURVEY UNIT P.O.BOX 17107 DENVER, COLORADO 80217

Irrigation Scheduling

Overwatering crops has almost the same bad effect as underwatering. Plant roots require air in the rest zone to survive. Water logged soils prevent the roots from growing and may even kill the roots already present. This can decrease crop yields.

It is a common practice in some areas to turn the irrigation water on the field In the spring and let it run until the stream dries up. The thinking behind this practice is to let the soil soak up the water so there will be a water supply in the soll available to the crop after the surface water supply runs out.

Different plants have different rooting depths. Agronomists commonly accept alfalfa as having a 5 to 6 foot rooting depth while corn, sorghum and sugar beets have a 4 foot rooting depth. Beans, grass, and small grains are thought to have about a 3 foot rooting depth.

High water tables, bedrock and gravel layers may restrict this rooting depth to a shallower depth. Deep well drained loam solls promote a deeper rooting depth.

The soll acts as a sponge to soak up the moisture added by rains or irrigations. The water soaks down through the soil filling the soil pores to field capacity. Field capacity is the quantity of water held in the small peres of the soil against gravitational pull. The top inch of soil is filled to field capacity before the second inch Is filled and so on.

Solls vary in their water holding capacity. Typically, this varies between about 0.7 of an Inch of water per foot of very sandy solls to about 2.3 Inches of water per foot. A soll with a water holding capacity of one inch por foot can hold three inches of water available for plant use in a three foot rooting depth.

It takes one to three days or more for excess water to drain out of the larger sell pores. During this time after an irrigation, the roots cannot expand because of lack of air in the root zone. If water is applied continuously, the roots will never expand Into this water logged area.

When the streams dry up and water is no longer applied continuously, the plants find themselves with roots in the upper foot or so of the sell profile as a result. The roots may be able to get water out of only one-third to one-fourth of their potential root zone. This means the plants will dry up and die or produce much less than their potential.

It is important to schedule irrigations to keep from overwatering soils. The basic principle involved is to let plant roots soak up the water held in the soil until ene-third to one-half of the water available to the plants is used. Then irrigation water is applied to bring the soll water holding capacity back up to the maximum that the soll can hold. Typically, this involves putting on three or four net Inches of water per Irrigation. Depending on the crop invelved, the time of year and the climatic conditions (temperature, humidity, daylight hours) this may last from six to twenty days before another irrigation is necessary.

Your local Soll Conservation Service office has plant water needs, and solls water holding capacity available. The technician in the office can assist irrigaters to plan proper scheduling.

"The Conservation of Water begins with the Snow Survey"



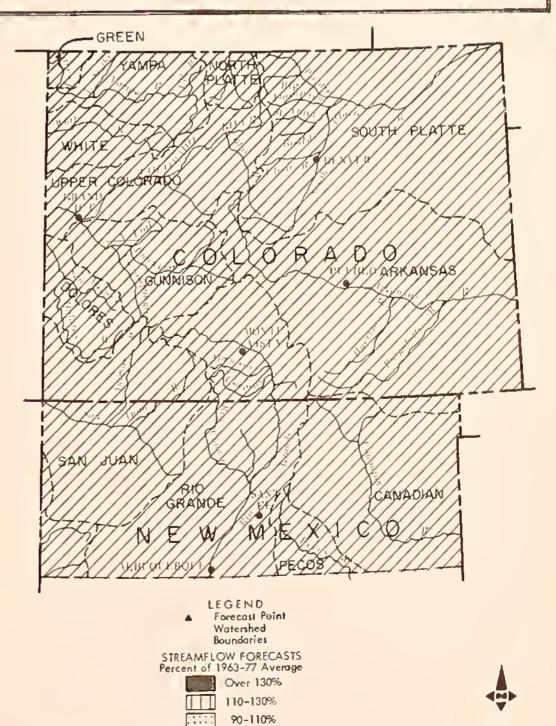
WATER SUPPLY CONDITIONS as of

MARCH 1, 1981

FEBRUARY BROUGHT NO RELIEF TO THE ABNORMALLY DRY WINTER IN EITHER COLORADO OR NEW MEXICO. PRECIPITATION WAS WELL BELOW AVERAGE IN NEARLY ALL LOCATIONS DES-PITE A MAJOR STORM DURING THE FIRST WEEK OF THE MONTH. A MODERATE TO SEVERE WATER SHORTAGE IS ANTICIPATED FOR ALL STREAMS. MOST ADVERSELY IMPACTED WILL BE WATER USERS WHO DEPEND UPON DIRECT DIVERSIONS FROM STREAMS AND WHO HAVE NO SUPPLEMENTAL STORED NATER. WATER USERS WITH STORED WATER RIGHTS WILL BE MINI-MALLY IMPACTED DUE TO THE ABOVE NORMAL STORAGE IN RESERVOIRS IN BOTH COLORADO AND NEW MEXICO. ALL FORECASTS ARE A JOINT EFFORT OF THE SOIL CONSERVATION SERVICE AND THE NATIONAL WEATHER SERVICE.

COLORADO -- PRECIPITATION DURING FEBRUARY WAS ABOUT 2/3 OF NORMAL. THE MOUNTAIN SNOWPACK IMPROVED ONLY SLIGHTLY FROM A MONTH PREVIOUS AND IS NOW ONLY 41 PERCENT OF NORMAL OVER THE ENTIRE STATE. STREAMFLOW FORECASTS HAVE DROPPED 10 TO 20 PERCENT FROM FEBRUARY I AND GENERALLY RANGE FROM 35 TO 55 PERCENT OF AVERAGE. NORMALLY, 80 PERCENT OF THE SEASON'S PEAK SNOW ACCUMU-LATION IS ON THE GROUND BY FEBRUARY I MEANING THERE IS VERY LITTLE LIKELIHOOD OF CATCHING UP. RESERVOIR STORAGE STATEWIDE IS 11 PERCENT ABOVE AVERAGE. NEW MEXICO -- ALL STREAMFLOW FORECASTS HAVE BEEN REDUCED SUBSTAN-TIALLY FROM A MONTH AGO. CURRENT PREDICTIONS ASSUMING NORMAL PRECIPI-

TATION FOR THE REMAINDER OF THE SEASON ARE FOR FLOWS ONE-THIRD TO ONE-HALF OF NORMAL. NEARLY ALL OF THE SNOW COURSES IN THE STATE MEASURED NEW MINIMUMS OF RECORD. PRECIPITATION DURING FEBRUARY WAS ONLY ONE-THIRD OF AVERAGE BRINGING THE SEASONAL TOTAL TO JUST OVER 50 PERCENT OF NORMAL. RESERVOIR STORAGE IS DOUBLE THE NORM AND WILL PROVIDE MUCH NEEDED WATER TO USERS WITH STORED WATER RIGHTS.



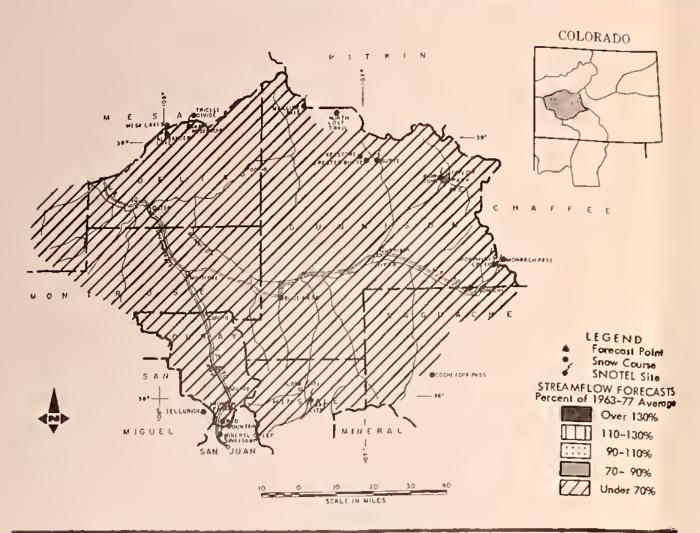
The map on this page indicates the most probable water supply as of the date of this report. Estimates assume average conditions of snow fall, precipitation and other factors from this date to the end of the forecast period. As the season progresses accuracy of estimates improve. In addition to expected streamflow. reservoir storage, soil moisture in irrigated areas, and other factors are considered in estimating water supply. Estimates apply to irrigated areas along the main streams and may not indicate conditions on small

70- 90%

Under 70%



GUNNISON RIVER WATERSHED IN COLORADO



YOUR WATER SUPPLY
ALL STREAMS, WITH THE EXCEPTION OF SURFACE CREEK, ARE FORECAST TO PRODUCE RUNOFF
LESS THAN HALF OF NORMAL. WATER USERS WITH JUNIOR WATER RIGHTS AND OIRECT DIVERSIONS CAN EXPECT MODERATE TO SEVERE SHORTAGES. STORED WATER IN RESERVOIRS IS 15
PERCENT ABOVE NORMAL BUT SLIGHTLY BELOW A YEAR AGO. THE MOUNTAIN SNOWPACK IS
ONLY 45 PERCENT OF NORMAL OVER THE BASIN. PRECIPITATION OURING FEBRUARY WAS 65
PERCENT OF NORMAL BRINGING THE SEASONAL TOTAL TO 63 PERCENT OF AVERAGE. SOIL
MOISTURE IS RATED AS FAIR TO POOR IN IRRIGATED AREAS.

STREAMFLOW FORECASTS (1909 Ac. Ft.) April - September

FORECAST POINT	Forecast	% of Average	1963-77 Average
Gunnison River inflow to Blue Mesa Reservoir (1)	375	50	754.0
Gunnison River near Grand Junction (2)	400	35	1150.0
North Fork of Gunnison (3)	120	46	262.0
Surface Creek at Cedaredge	9	59	15.2
Uncompangre River at Colona	55	43	129.0

(1) Observed flow plus change in storage in Taylos Restricts. [2] Observed flow plus change in storage in Blus Xisa, Morrow Paint and Taylos Resembles.

[3] Observed flow plus change in storage in Paonia Reservace.

	pressed as "Poor, F allent" With Respace	
STREAM or AREA	Flow P	Laje
Ohio Creek Slate River Taylor River Tomichi Greek	Fair Fair Fair Fair Fair	Poor Poor Poor

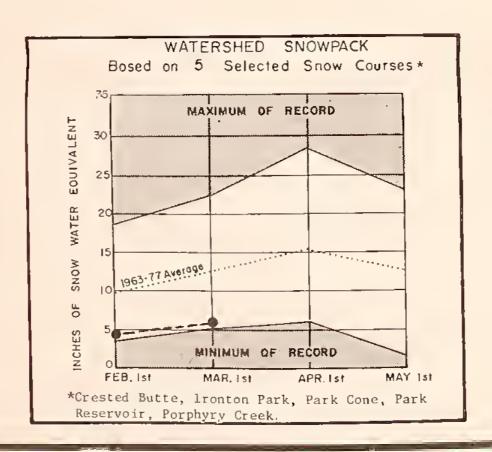
Basin of Stream	Usable	U	sable Stora	+
RESTRYOIR	Сараспе	The S Year	1.001	Delta de la constanta de la co
Blue Mesa Morrow Point Taylor	830 121 106	446 115 51	448 115 72	366 101 63

SUMMARY OF SNOW MEASUREMENTS

RIVER BASIN	Number of Course a	THIS YEAR'S SNOW WATER AS PERCENT OF		
SUB-MATERSHED	Averaged	Last Year	1963-77 Avarage	
Gunnison Surface Creek Uncompahgre	13 3 3	31 39 41	45 61 47	

IOW COURSE MEASUREMENTS	CURR	ENT INFORM	ATION	PAST R	ECORO
SNO+ COUPSE	DATE	SNO# OEPTH	WATER CONTENT	HATER C	ONTENT
	SURVEY	(INCHES)	INCHEST	LAST YEAR	AVG 63-77
GUNNISON BASIN					
Gunnison River					
Alexander Lake	2/27	38	10.4	26.4	
Blue Mesa	2/27	17	3,4	8.6	1
Butte	2/26	19	4.0	20.7	l .
Gochetopa Pass (B)	2/24	10	2.2	5.3	•
Crested Butte	2/26	13	3.1	1	1
Keystone	2/26	21	5,2	27.3	1
Lake City	2/25	11	2.2	7.7	
Mesa Lakes (B)	2/26	32	7.8	18.8	
McClure Pass	2/27	24	6.8	17.7	
Park Cone	2/27	19	4.2		
Park Reservoir	2/27	47	11.4		
Porphyry Creek	2/27	26	5.2		
Slumgullion	2/25	24	5.3		
Tomichi	2/27	15	3.0	12.4	10.
Surface Creek					
Alexander Lake	2/27	38	10.4	26.4	16.
Mesa Lakes	2/26	32	7.8	18.8	
Park Reservoir	2/27	47	11.4	30.8	
Uncompangre River					
Idarado	2/26	28	5.6	14.4	_
Ironton Park	2/26	22	4.8		
Red Mountain Pass	2/26	52	12.1	l	
Telluride (B)	2/23	15	3,4		

75-70 survey. (B)-0m adjacent drainage.



LIST OF COOPERATORS

The following organizations cooperate in snow surveys for the Colorado, Platte, Arkansas and Rio Grande watersheds. Many other organizations and individuals furnish valuable information for the snow survey reports. Their cooperation is gratefully acknowledged.

STATE

Colorodo State Engineer
Colorodo Stote Soil Conservation Board
New Mexico State Engineer
Colorado State University Experiment Station
Rocky Mountain Forest and Range Experiment Station
New Mexico Dept. of Gome and Fish
University of Colorado, INSTAAR

FEDERAL

Deportment of Agriculture
Forest Service
Soil Conservation Service
Department of Interior
Sureou of Reclamation
Geological Survey
National Park Service
Deportment of Commerce
NOAA, National Weather Service
Defense Deportment
Army Engineer Corps
National Aeronautics and Space Administration
Goddard Space Flight Center

INVESTOR OWNED UTILITIES

Colorodo Public Service Company

Public Service Company of New Mexico

MUNICIPALITIES

City of Denver

City of Boulder

City of Greeley City of Fort Collins WATER USERS ORGANIZATIONS
Arkonsas Valley Ditch Association
Colorado River Water Conservation District

IRRIGATION PROJECTS

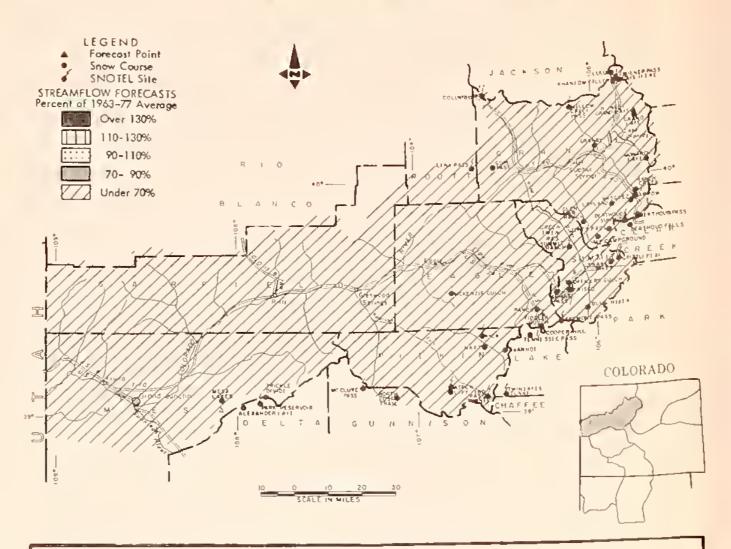
Farmers Reservoir and Irrigation Company
San Luis Valley Irrigation District
Santa Mario Reservoir Company
Costillo Land Company
Montezuma Irrigation Co.
Uncompangre Valley Water Users' Association
Twin Lakes Reservoir and Canal Compony
Trinchera Irrigotion Co.

CORPORATIONS

Aspen Skiing Corp.
Colorodo Fuel and Iron Corp.
Climax Molybdenum Corp.
Copper Mountoin Ski Area
Loke Eldora Corp.
Voil Associates, Incorporated
Vermejo Park Corp. (NM)
Taylor Lumber and Land Company
Idorado Mining Corp.

PRIVATE CITIZENS
Otto Goemmer, Colorodo
Moreno Ranch, New Mexico

COLORADO RIVER WATERSHED IN COLORADO



YOUR WATER SUPPLY

WATER USERS CAN EXPECT MUCH BELOW NORMAL SPRING AND SUMMER RUNOFF IN THE RANGE
40 TO 60 PERCENT OF AVERAGE OVER THE ENTIRE BASIN. FEBRUARY BROUGHT LITTLE
RELIEF TO THE SNOW STARVEO MOUNTAINS. PRECIPITATION FOR THE MOUNTH WAS ONLY 57
PERCENT OF AVERAGE. SEASONAL PRECIPITATION ACCUMULATED SINCE OCTOBER 1 IS ONLY
55 PERCENT OF AVERAGE. THE MOUNTAIN SNOWPACK IS 47 PERCENT OF AVERAGE WHEN THE
BASIN IS CONSIDERED IN 1TS ENTIRETY. CONTENTS OF MAJOR RESERVOIRS IS 17 PERCENT
ABOVE NORMAL AND 6 PERCENT GREATER THAN A YEAR AGO WHICH WILL HELP THOSE WHO
HAVE STORED WATER RIGHTS.

STREAMFLOW FORECASTS (1000 Ac. Ft.) April - September

FORECAST POINT	Forecast	% of Average	1963-77 Average
East Fork Troublesom Creek near Troublesome Blue River inflow to Dillon Reservoir Blue River inflow to Green Mountain Reservoir (1) Colorado River near Cameo (2) Colorado River near Dotsero (3) Colorado River inflow to Granby Reservoir (4) Eagle River below Gypsum Roaring Fork at Glenwood Springs (5) Williams Fork near Parshall (6) Willow Creek inflow to Willow Creek Reservoir	7	41	17.0
	90	54	167.0
	160	56	287.0
	1140	49	2336.0
	740	52	1422.0
	135	62	218.0
	135	45	298.0
	350	50	697.0
	24	41	59.0
	23	48	48.0

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RESERVOIR STORAGE (Thousand Ac. Ft.) END OF MONTH

Bearn or Stream	Usable	U	sable Stora	t •
RESERVOIR	Capaciti	Thui Tou	1 (4)	1961-77 Arerali
Dillon	254	187	228	200
Granby	466	312	262	242
Green Mountain	139	73	77	67
Homestake	43	19	20	19
Ruedi	101	77	63	64
Vega	32	10	11	11
Williams Fork	97	71	45	37
Willow Creek	9	6	7	7

	Fla≠	Period
STREAM or AREA	Spins Season	Late Seaton
rush	Fair	Poor
ypsum Creek	Fair	Poor



Headwaters of the Snake River near Loveland Pass.

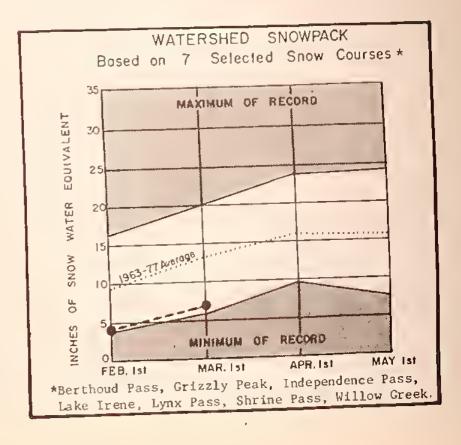
SUMMARY OF SNOW MEASUREMENTS

RIVER BASIN	and or Covisias		AR 5 SNOW PERCENT OF
SUB-MATERSHED		(+x) Y+#	1961 27 Arerete
Blue River	8	27	39
Colorado	20		
Plateau	3	39	60
Roaring Fork	8	27	41
Williams Fork	3	29	42
Willow	2	29	36

SHOW COURSE MEASUREMENTS

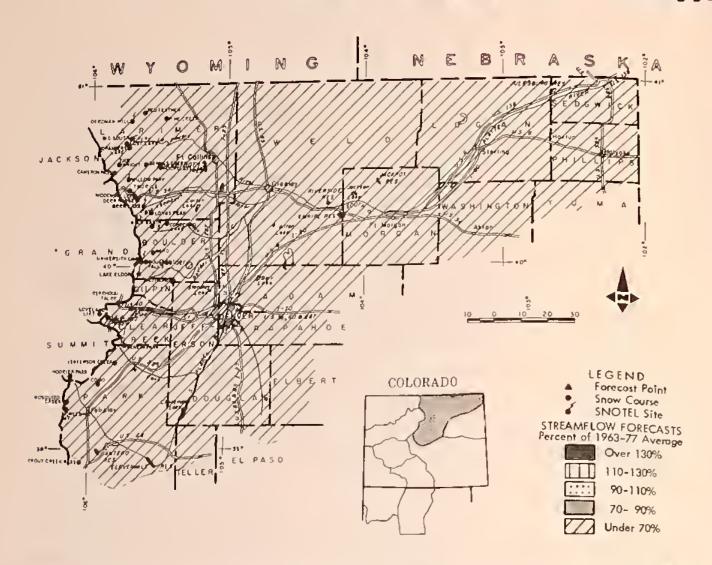
	DATE	SHOW	WATER	WATER CO	NTENT (S)	
SNOW COURSE	SURVEY	DEPTH (INCHES)	(INCHES)	LAST YEAR	AVG. 63-1/1	
COLORADO BASIN Blue River Blue River Fremont Pass Grizzly Peak Hoosier Pass Officers Gulch Shrine Pass Snake River Summit Ranch	2/27 2/25 2/27 2/27 2/26 2/26 2/27 2/25	26 27 12 7 30 8	1,7 5,6 6,7 3.8 1,4 7,2 1,6	17.8 16.3 9.4	12.3 14.1 9.9 5.1 13.9 6.8	
Golorado River Arrow Berthoud Pass Berthoud Summit Cooper Hill	2/2 2/2 2/2 2/2 2/2	7 27 6 28	5.2 6.7 7.3 4.2	20.1	14.6	
Copper Mountain Glenmar Ranch Gore Pass Grand Lake Lake Irene Lapland Lulu Lynx Pass McKenzie Gulch Middle Fork Milner North Inlet Pando Phantom Valley Ranch Creek Tennessee Pass (F	2/2 2/2 2/2 2/2 2/2 2/2 2/2 2/2 2/2 2/2	6 22 15 15 13 16 17 26 27 25 12 21 22 13 22 16 27 25 12 26 17 27 28 19 26 17 27 12 12 13 16 17 17 18 18 19 19 19 10 10 10 10 10 10 10 10 10 10	4.4 3.0 2.6 3.6 6.8 3.1 7.0 4.4 2.4 3.6 3.3 2.3 3.3 2.7	13,8 9,6 10,6 12,3 23,0 12,3 6,1 10,8 10,8 11,9 16,0 11,9 16,0 11,0 11,0 11,0 11,0 11,0 11,0 11,0	7.2 8.5 7.1 17.4 8.6 9.15.0 8.10.3 0.5.3 9.8.1 11.3 2.7.4 8.6 9.7.4 8.7 9.7 9.7 9.7 9.7 9.7 9.7 9.7 9.7 9.7 9	3340011.82
Vasquez <u>Plateau Creek</u> Mesa Lakes Park Reservoir Trickle Oivide	2/2/	26 32 27 47 27 46	7,:	8 18.	8 12. 8 18.	9 5
Roaring Fork Aspen Independence Pass Ivanhoe Kiln Lift McClure Pass Nast North Lost Trail	2/	28 28 26 31 26 19 23 29 27 24 23 6	6.6 3.6 6.8 1.3	4 17. 8 18. 9 11. 6 17. 8 17. 8 8.	0 12. 2 14. 2 10. 8 13. 7 13. 5 5.	8 5 0 9 8
Williams Fork River Glenmar Ranch Jones Pass Middle Fork Ute Pass Willow Creek	2/2	25 24	5,4	4 1.7.	6 12. 9 8.	, 2 , 1 , 1
Granby Willow Creek Pass	2/: 2/:					. 6

HS-No vurvry. (B)-On adjacent drainage,





SOUTH PLATTE RIVER WATERSHED IN COLORADO



YOUR WATER SUPPLY

THE MOUNTAIN SNOWPACK IN THE BASIN AVERAGED ONLY 34 PERCENT OF NORMAL ACCORDING TO SURVEYS THE END OF FEBRUARY. THE HEAVY SNOW DURING THE FIRST 4 DAYS OF MARCH IMPROVED THAT FIGURE TO 42 PERCENT OF AVERAGE. EVEN WITH THE NEW SNOWFALL THE MOUNTAIN SNOWPACK REMAINS NEAR THE MINIMUM OF RECORD. POOR STREAMFLOW IS FORE-CAST FOR THE SPRING AND SURMER, AND GENERALLY RANGES BETWEEN 40 TO 50 PERCENT OF AVERAGE. RESERVOIR STORAGE REMAINS THE LONE BRIGHT SPOT WITH CONTENTS 7 PERCENT ABOVE NORMAL. SOIL MOISTURE LEVELS HAVE IMPROVED AND ARE NOW IN FAIR TO GOOD

STREAMFLOW FORECASTS (1000 Ac. Ft.) April - September

FORECAST POINT	Forecast	% of Average	1963-77 Average
Bear Creek at Morrison	14	50	28.0
Big Thompson River at Drake (1)	53	52	102.0
Boulder Creek at Orodell	22	49	45.1
Cache La Poudre River at Canyon Mouth (2)	125	51	243.0
Clear Creek at Golden (3)	60	50	120.0
St. Vrain Creek at Lyons	34	47	71.6
South Platte River at South Platte	77	40	193.0

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Windsor

WATER CLIPPLY MITTI DOK Expressed as "Pool, Fail, Average, Ex. RESERVOIR STORAGE (Thousand Ac. Ft.) END OF MONTH

	Flow P	eriod
STREAM or AREA	Spling Seacon	Late Season
Coal Creek	Poor	Poor
North Fork of South	Fair	Poor
Platte		
North Fork of Cache	Fair	Poor
La Poudre		
Ralston Creek	Fair	Poor
Rock Creek	Fair	Poor
South Platte from		
Greeley to Fort Morgan	Fair	Poor
South Platte from		
Fort Norgan to	Fair	Poor
Sterling	rait	LOOL
South Platte below	Fair	Poor
Sterling	1	1001



ESERTOIR STORAGE (111002011	U MU. IL	. P ENU UI	MONTH	
Basin of Stream	Usable	U	leable Stora	le .	L
RESERVOIR	Capacity	That	l, net Your	(963-77 Atelage	
Antero	16	16	16	14	
Barr Lake	32	29	24	23	
Black Hollow	8	3	5	4	
Boyd Lake	44	36	41	37	
Cache La Poudre	10	8	9	7	ı
Carter Lake	109	86	101	91	ı
Chambers Lake	9	2	6	3	ı
Cheesman	79	75	69	48	
Cobb Lake	34	12	20	14	
Eleven Mile	98	97	98	86	
Empire	38	29	19	29	
Fossil Creek	12	5	5	8	
Gross	43	21	23	28	١
Halligan	6	6	6	4	
Horsetooth	144	107	114	95	ŀ
Jackson	35	33	32	32	
Julesburg	28	20	18	20	
Lake Loveland	14	10	8	9	ı
Lone Tree	9	2	8	6	1
Mariano	6	5	5	5	
Marshall	10	5 5	7	4	ŀ
Marston	17	16	17	15	ı
Milton	24	16	16	13	
Point of Rocks	70	68	70	62	
Prewitt	33	23	27	19	
Riverside	58	47	34	52	
Standley	42	32	41	23	
Terry	8	5	5	5	
Under	12		,)	

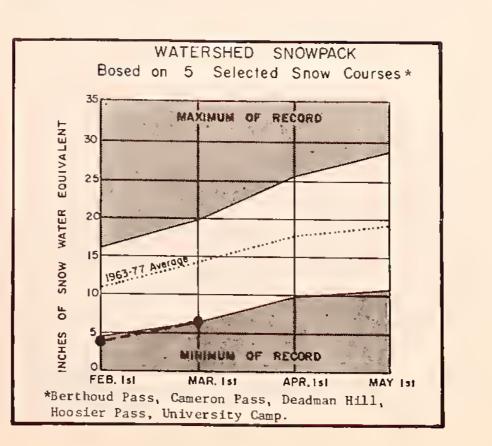
SUMMARY of SNOW MEASUREMENTS

RIVER BASIN	Number of Courses	THIS YEAR S SNOA MATER AS PERCENT OF		
SUB-WATERSHED	Averages	Leel Year	1963-77 Assenge	
Big Thompson Boulder Cache La Poudre Clear Creek Saint Vrain South Platte	5 3 9 5 3 5	22 17 33 27 9 21	31 21 43 39 17 30	

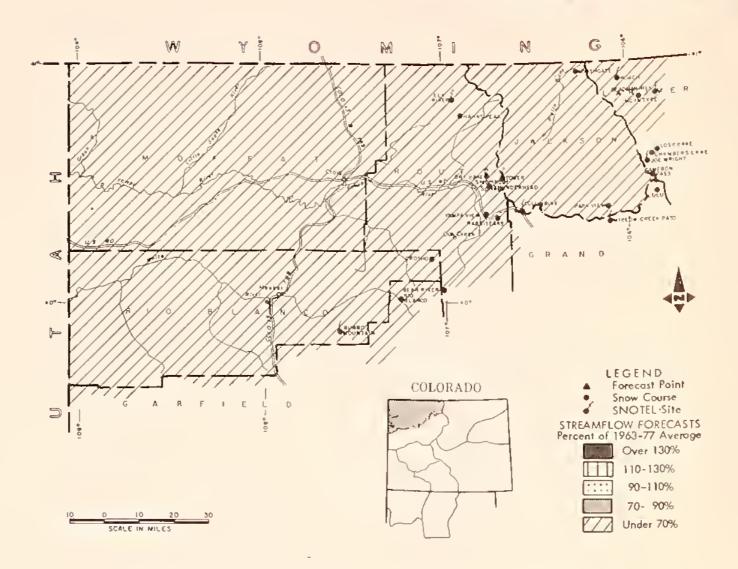
SHOW COURSE MEASUREMENTS

	DATE SNOW WATER		WATER	WATER CONTENT (INCHES)	
SHOW COURSE	SURVEY	(INCHES(CONTENT (INCHES)	LAST YEAR	AVG. 63-77
SOUTH PLATTE BASIN					
Boulder Creek	0.106	,			د ع
Baltimore Boulder Falls	2/26 2/25	9	1.0	8.8 9.3	5.7
Lake Eldora	2/24	12	2.8	13.2	
University Camp	2/25	14	3.2	18.8	13.5
Big Thompson River					
Bear Lake	2/27	19	3.6	19.2	
Deer Ridge	2/27	1	0.2	9.5	
Hidden Valley Lake Irene (B)	2/26	11 27	2.4	10.2	7.9
Long's Peak	2/26 2/23	8	6.8	11.7	8.2
Two Mile	2/26	15	3.3		11.1
Willow Park	3/01	23	5.1	19.5	
Cache La Poudre					
Bennett Creek	2/27	11	2.2	10.3	ı
Big South	2/26	0	0.0	4.6	
Cameron Pass Chambers Lake	2/26 2/26	30	9.6	11.5	22.6
Deadman Hill	2/25	31	8.4		12.9
Hourglass Lake	2/27	10	2.0	9.4	4.0
Joe Wright	2/26	44	10.8		19.6
Lost Lake Red Feather	2/26 2/25	13 8	2.9	12.7	
	2/23	0	2.0	10.2	5.3
Clear Creek					
Baltimore (B)	2/26	4	1.0	8.8	ı
Berthoud Falls Empire	2/26 2/26	14 8	3.4 1.8	9.1	11.0
Grizzly Peak (B)	2/20	27	6.7		14.1
Loveland Pass	2/27	23	6.1		12.5
St. Vrain River					
Copeland Lake	2/27	3	0.5	8.6	3.8
Ward	2/24	2	0.4	8.1	4.4
Wild Basin	2/27	12	2.4	14.0	8.9
South Platte River					
Bison Reservoir	2/24	0	0,0	6.2	
Como	2/24	4	1.1	7.1	5.9
Geneva Park Horseshoe Mountain	2/24	3	0.5	12.4	3.3 8.3
Hoosier Pass	2/24 2/27	13 12	2,8	16.3	9.9
Jefferson Creek	2/24	14	3.0	10.3	
Mosquito	2/27	5	1.0	12.4	8.3
Niwot Trout Creek Pass	2/25	9	2.2		1 2
TIOUL CIEEK FASS	2/24	9	1.6	6.2	4.1
	1		1		

(B)-On adjacent drainage.



YAMPA, WHITE AND NORTH PLATTE RIVER WATERSHEDS IN COLORADO



YOUR WATER SUPPLY

STREAMFLOW FORECASTS RANGE FROM A LOW OF 40 PERCENT OF NORMAL ON THE ELK RIVER AND LITTLE SNAKE TO 49 PERCENT OF NORMAL ON THE WHITE RIVER. THESE FORECASTS ASSUME NORMAL PRECIPITATION FOR THE REMAINDER OF THE YEAR. PRECIPITATION DURING FEBRUARY WAS ONLY 66 PERCENT OF NORMAL BRINGING THE SEASONAL TOTAL TO 52 PERCENT OF AVERAGE. THE MOUNTAIN SNOWPACK AVERAGES ONLY 45 PERCENT OF NORMAL OVER THE ENTIRE BASIN. MANY SNOW COURSES INCLUDING COLUMBINE LODGE WITH 45 YEARS OF HISTORY MEASURED THE MINIMUM OF RECORD FOR THIS TIME OF YEAR.

STREAMFLOW FORECASTS (1000 Ac. Ft.) April - September

FORECAST POINT	Forecase	% of Average	1963-77 Average
Elk River at Clark Laramie River near Woods Little Snake River at Lily North Platte River at Northgate White River near Meeker Yampa River near Maybell Yampa River at Steamboat Springs	80	40	198.0
	60	118	125.0
	140	40	349.0
	102	43	238.0
	140	49	287.0
	380	42	905.0
	130	48	273.0

SUMMARY of SNOW MEASUREMENTS

RIVER RASIN	Number of Courses	THIS YEAR S SNOW WATER AS PERCENT OF		
SUB-WATERSHED	Avelaged	LacoTeas	1963-77 Average	
E1k	2	37	50	
Laramie	2	43	55	
North Platte	5	35	39	
White	2	33	38	
Yampa	6	40	46	

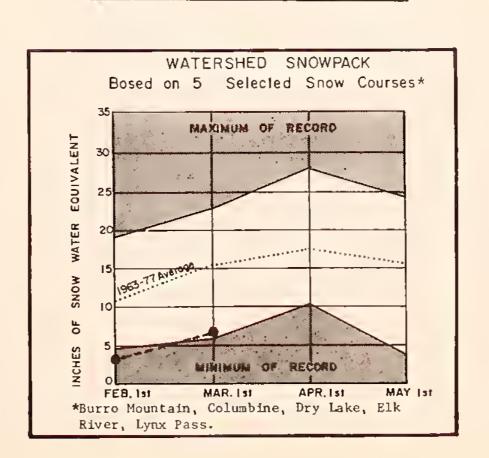
SNOW COURSE MEASUREMENTS

SNOW COURSE			ATION		COND
	DATE SNOW WATER CONTENT SURVEY (INCHES)		WATER	WATER CO	
	SURVEY	(INCHES)	(INCHES)	LAST YEAR	AVG. 63:77
NORTH PLATTE BASIN					
Laramie River					
Deadman Hill	2/25	31	8.4	15.8	12.9
McIntyre Roach	N/S 2/24	32	7.0	20.1	15.0
North Platte River					
Comeron Pass Columbine Lodge	2/26	30 27	9.6	22.2	22.6
Northgate	2/25 2/27	5	7.3	7.6	5.4
Park View Willow Gr. Pass (B)	2/7 2/26	17 21	3.2	8.5	7.6
	2,20		7.5	12.00	1.0.2
YAMMA BASIN Elk River					
Elk River	2/26	28	8.0	19.2	15.4
Hahn's Peak	2/26	21	5.9		12.3
White River					
Burro Mountain Rio Bianco	2/25	24 19	6.1	15.4	13.9
Yampa River	2/6	13	3.9	15.2	1
Bear River	2/26	21	4.5	12.3	
Columbine (B)	2/25		7.3	21.7	19.9
Crosho Dry Lake	N/S 2/24	28	7.7	20.5	16.
Lynx Pass (B) Rabbit Ears	2/25	19	4.4		8 10. 7 21.
Tower	2/25		10.9	45.	0 39.
Yampa View	2/25		5.8	16.	7 13.

(B)=On adjacent drainage.

WATER SUPPLY OUTLOOK Espiceced as 'Pooi, Fail, Average, Excellent' With Respect to Deval Supply

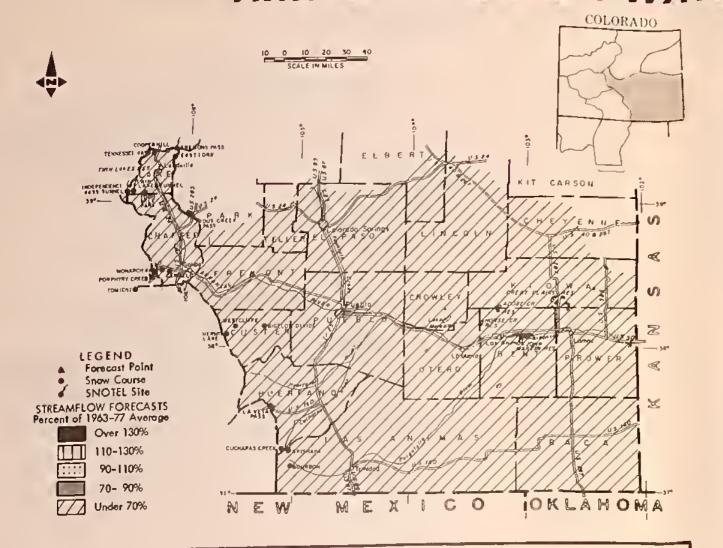
	Flow Period		
STREAM SI AREA	Spring Senson	Laie Stacon	
Canadian River Hunt Creek Illinois River Michigan River Oak Creek Trout Creek	Fair Fair Fair Fair Fair Fair	Poor Poor Poor Poor Poor	







ARKANSAS RIVER WATERSHED IN COLORADO



YOUR WATER SUPPLY

STREAMFLOW FORECASTS RANCE FROM A LOW OF 31 PERCENT OF AVERAGE ON THE ARKANSAS AT PUEBLO TO 44 PERCENT ON THE CUCHARAS NEAR LA VETA. THE POOR OUTLOOK FOR THE COMING SPRING AND SUMMER RUNOFF IS A RESULT OF MOUNTAIN SNOWPACKS WHICH ARE MINIMUM OF RECORD FOR THIS TIME OF YEAR. THERE IS LESS THAN A 5 PERCENT CHANCE OF RECOVERY TO AVERAGE CONDITIONS AT THIS LATE DATE. PRECIPITATION DURING FEBRUARY IN HEADWATER AREAS WAS ONLY HALF OF NORMAL BRINGING THE SEASONAL TOTAL TO 45 PERCENT OF AVERAGE. STORAGE HELD IN IRRIGATION RESERVOIRS 1S 29 PERCENT ABOVE NORMAL.

STREAMFLOW FORECASTS (1000 Ac, Ft.) April - September

FORECAST POINT	Forecast	% of Average	1963-77 Average
Arkansas River abv. Pueblo (1) Arkansas River at Salida (2) Cucharas River near La Veta Huerfano Rlver near Redwing Purgatoire River at Trinidad (3) Grape Creek nr Westcliffe	80	31	260.0
	138	48	285.0
	4	44	9.1
	5	37	13.4
	12	36	32.8
	6	38	16.0

RESERVOIR STORAGE (Thousand AC. Ft.) END OF MONTH					
Been of Stream	Usable	Unable Unable Stolage			
RESERVOIR	Capacila	This	t ast Year	1963-77 Assings	
Adobe	60	41	1	13	
Clear Creek	11	5	7	7	
Great Plains	50	13	0	42	
Holbrook Lake	7	2	5	-	
Horse Creek	27	20	21	5	
John Martin	621	65	32	56	l
Lake Henry	8	2	5	-	l
Meredith	42	2	0	10	ı
Pueblo	351	65	57	-	l
Trinldad	158	42	22	-	l
Turquoise	121	56	85	30	l
Twin Lakes	68	42	33	26	

WATER	SUPPLY	OUTLOOK	Expressed as callent* With	Poor, Fair, Average . E Respect to Usual Suppl
				Cl. C

	Flow	Pariod
STREAM OF AREA	Spring Sesson	Late
Apishapa River	Poor	Poor
Fountain Creek	Poor	Poor
Hardscrabble Creek	Poor	Poor
Monument Creek	Poor	Poor
		1

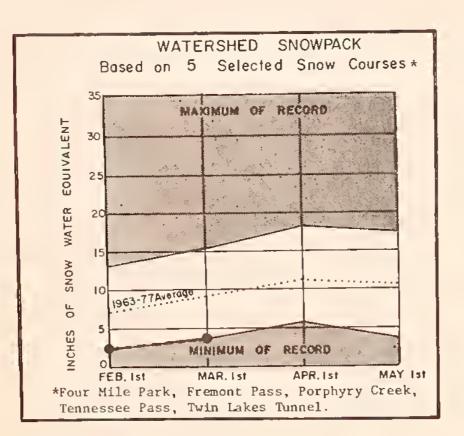
SUMMARY OF SHOW MEASUREMENTS ICOMPARISON WITH PREVIOUS YEARS)

RIVER BASIN and or	Number of Courses		AR'S SNOR PERCENT OF
SUB-MATERSHED	Asstaged	E441 Y+++	1961-77 Assists
Arkansas	11	31	41
Cucharas	2	13	16
Purgatoire	1	24	33

SNOW COURSE MEASUREMENTS ____

JAON COURSE PIENSUREPIENTS	CURRENT INFORMATION		PAST RECORD		
SNOW COURSE	OATE	SNDW	WATER	WATER CO	HTENT ES}
	SURVEY	OEPTH (IMCNES)	(INCHES)	LAST YEAR	AVG. 43-77
ARKANSAS BASIN					
Arkansas River					
Bigelow Divide Brumley Cooper Hill (B) East Fork Four Mile Park Fremont Pass Garfield Hermit Lake Monarch Pass South Colony Tennessee Pass Twin Lakes Tunnel Westcliffe	2/24 2/25 2/27 2/25 2/25 2/25 2/27 2/25 2/27 2/26 2/25 2/28 2/24	11 16 21 12 8 26 19 5 21 24 9	2.2 3.0 4.2 2.4 1.6 5.6 4.2 1.6 4.7 8.0 2.0 4.2 2.4	5.8 12.3 10.2 9.8 7.7 15.8 16.3 9.1 16.2 16.5 11.1 12.6 7.2	5.6 8.5 8.0 4.9 12.3 11.0 7.6 13.4 8.2 8.0 6.6
Cucharas River Apishapa Cucharas Creek La Veta Pass (B) Huerfano Purgatoire River Bourbon Whiskey Creek	2/26 2/26 2/26 2/26 2/26 2/27 2/27	2 9 8 0	0.4 2.3 1.9 0.0 1.9 0.8	8.0 8.5 9.6 7.3 7.9 8.9	6.4 7.6 5.7

NS-No survey. (B)-On adjacent drainage.



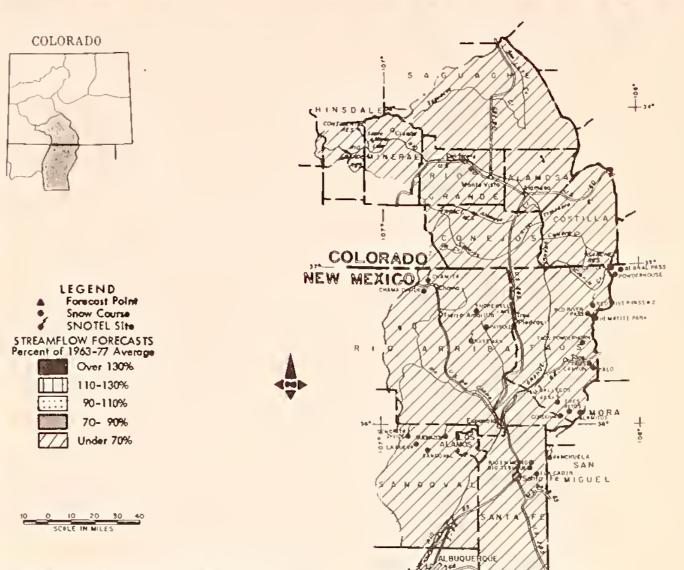


Concrete ditch reduces conveyance losses



Manual readings taken to verify accuracy of telemetered data

RIO GRANDE WATERSHED IN COLORADO AND NEW MEXICO



RESERVOIR STORAGE (Thousand Ac. Ft.) END OF MONTH

and/ol	Unable	Usepic Storage		
RESERVOIR	Сараспу	This Year	Lasi Year	1963-77 Assiags
COLORADO				
Continental	27	8	7	4
Platoro	60	20	31	9
Rio Grande	51	22	41	17
Sanchez	103	8	22	10
Santa Maria	45	11	12	6
Terrace	18	0	7	6
NEW MEXICO				
Avalon	5	4	4	3
Caballo	344	149	110	63
Conchas	273	37	75	134
El Vado	195	108	124	32
Elephant Butte	2195	1206	939	417
McMlllan	34	24	16	15
Sumner	ווו	32	90	64

WATER SUPPLY OUTLOOK Collect With Respect to Usual Supply

	Flow Period			
STREAM OF AREA	Spring Season	Laie Season		
OLORADO Sangre de Cristo Cr Trinchera Creek EW MEXICO	Poor Poor	Poor Poor		
Embudo Creek Mora River Nambe Creek Rio Ojo Caliante Santa Fe Creek	Poor Poor Poor Fair Poor	Poor Poor Poor Poor Poor		

YOUR WATER SUPPLY

WINTER. PRECIPITATION DURING THE MONTH WAS ONLY 21 PERCENT OF NORMAL IN THE RIO GRANDE BASIN IN COLORADO AND 34 PERCENT OF NORMAL IN NEW MEXICO. THE MOUNTAIN SNOWPACK IN THE COLORADO PORTION OF THE BASIN IS ONLY 42 PERCENT OF AVERAGE WHILE IN NEW MEXICO THE FIGURE IS 27 PERCENT OF AVERAGE. NEARLY ALL THE SNOW COURSES IN NEW MEXICO ESTABLISHED NEW MINIMUMS. WITH OVER BO PERCENT OF THE PRIMARY SNOW ACCUMULATION SEASON BEHIND, IT IS VIRTUALLY IMPOSSIBLE TO CATCH UP TO AVERAGE. STREAMFLOW FORECASTS ON THE RIO GRANDE RANGE FROM 18 PERCENT OF AVERAGE AT SAN MARCIAL TO 50 PERCENT AT DEL NORTE. STORAGE IN RESERVOIRS IN COLORADO IS 33 PERCENT ABOVE AVERAGE AND IN NEW MEXICO IT 1S 114 PERCENT ABOVE NORMAL, WHICH WILL HELP ALLEVIATE THE EFFECTS OF THE WINTER DROUGHT.

STREAMFLOW FORECASTS (1000 Ac. Ft.)

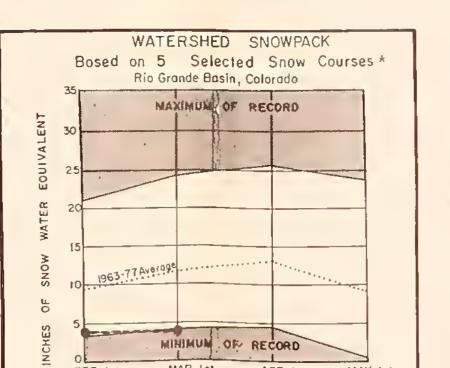
FORECAST POINT	Folecast	% of Average	1963-77 Average
COLORADO (April-September)			
Alamosa Creek above Terrace Reservoir	30	47	63.
Conejos River near Mogote (1)	85	46	183.
Culebra Creek at San Luis (2)	5	33	15.
La Jara Creek near Capulin	3	39	7.
Los Pinos River near Ortiz	22	36	61.
Rlo Grande at Thirty Mile Bridge (3)	65	55	119.
Rio Grande near Del Norte (3)	230	50	462.
Saguache Creek near Saguache	15	30	30.
San Antonio River at Ortiz	4	32	12.
South Fork of Rio Grande at South Fork	63	53	119
Trinchera Water Supply (April-July) (6)	8	36	21
NEW MEXICO (March-July)		1 30	
Costilla Creek at Costilla (4)	7	45	15.
Jemez River near Jemez	13	39	33.
Pecos River at Pecos	15	39	38
Red River at Mouth	16	59	27
Rio Chama at El Vado	50	2B	177
Rlo Grande at Otowi (5)	180	36	497
Rlo Grande at San Marcial (5)	60	18	335
Rlo Hondo near Valdez	5	39	12
Rio Pueblo de Taos near Taos	6	32	19
Santa Cruz River at Cundiyo	4	34	l ii

SUMMARY OF SHOW MEASUREMENTS

RIVER BASIN	Number of Courtse	THIS YE WATER AS	THIS YEAR'S SNOW WATER AS PERCENT OF		
SUB-WATERSHED	Asataged	Leal Year	1963-77 Average		
COLORADO					
Alamosa	1	0	0		
Conejos	6	23	43		
Culebra	4	24	31		
Rlo Grande, CO	13	29	45		

RIOW COURSE MEASUREMENTS	CURR	ENT INFORM	ATION	PAST RE	CORD
	DATE OF	SNOW	WATER CONTENT	WATER CO	NTENT ES)
SHOW COURSE	DATE SNOW DEPTH CONTENT (INCHES)		(INCHES)	LAST	AVG. 63:77
RIO GRANDE BASIN-COLO.					
Alamosa Rlver Llly Pond Silver Lakes	2/26 2/26	12	3.8	17.0 6.2	5.1
Conejos River Cumbres Pass Cumbres Trestle La Manga Pinos Mill Platoro River Sprlngs	2/26 2/26 2/26 2/27 2/27 2/26	21 35 29 30 20	6.5 10.0 6.6 8.4 5.2 0.0	34.6 39.6 23.9 31.4 18.7 8.6	16.0 18.1 14.2 17.3 13.8 5.2
Culebra Rlver Brown Cabin Culebra La Veta Pass (B) Trinchera (B)	2/25 2/26 2/26 2/25	30 8 8 11	1.0 2.0 1.9 3.2	8.3 8.8 9.6 7.5	4.9 7.2 7.6 6.8
Rio Grande Blg Meadows Cochetopa Pass Grayback Hiway Lake Humphrey Love Lake Middle Creek Pass Creek Pool Table Porcupine Santa Marla Upper Rio Grande Wolf Creek Pass Wolf Cr. Summlt (B)	2/27 2/24 2/24 2/25 2/25 2/23 2/23 2/25 2/25 2/25 2/25	13 10 21 31 10 12 32 15 9 14 1 10 36 38	4.3 2.2 4.8 10.4 2.2 3.0 9.0 4.6 1.6 2.7 0.2 2.2 10.6 12.6	19.9 5.3 13.9 30.9 8.2 10.2 20.9 17.4 5.9 9.9 6.3 11.6 35.5 35.2	7.1 4.7 12.2 19.5 5.8 6.9 ———————————————————————————————————

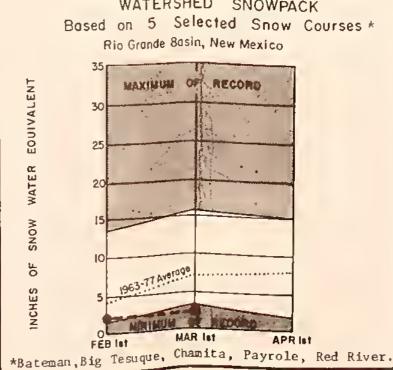
NS-No eurvey. (B)-On adjacent drainage.



WATERSHED SNOWPACK Based on 5 Selected Snow Courses * Rio Grande 8asin, New Mexico

*Cumbres Pass, La Veta Pass, Silver Lakes, Upper

Rio Grande, Wolf Creek Pass.



SUMMARY of SHOW MEASUREMENTS NEW MEXICO Pecos Red River

CURRENT INFORMATION PAST RECORD

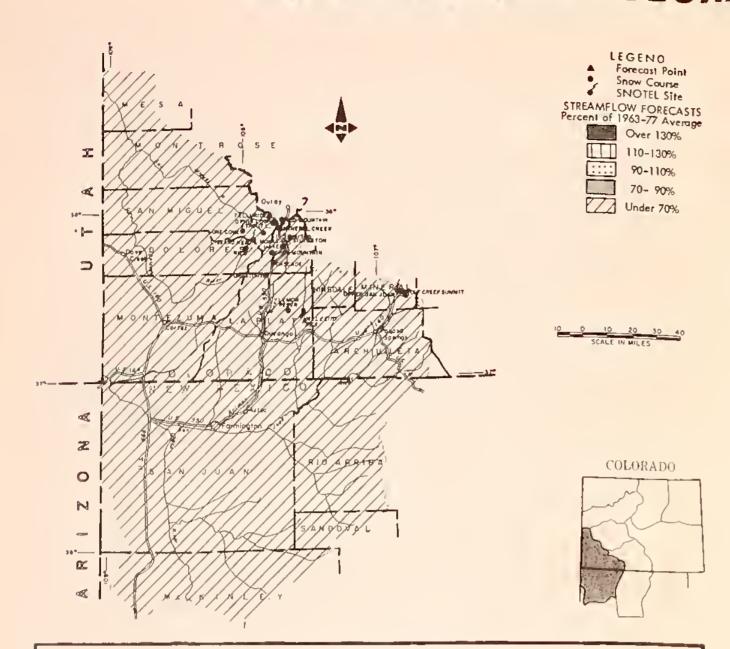
SHOW COURSE MEASUREMENTS

Rlo Chama Rlo Grande, NM

	DATE	SHOW	MATER	CHICH	ES)
SHOW COURSE	SURVEY	SHOW DEPTH (INCHES)	MATER CONTENT (INCHES)	LAST	AVG. 63-77
RIO GRANDE BASIN - NM Pecos River					
Panchuela	2/27	0	0.0	6.0	3.4
Red River Hematlte Park (B) Red River	2/25 2/25	0 6	0,0	4.9 6.1	3.7 5.5
Rlo Chama Bateman Chama Divide Chamita	2/25 2/25 2/25	20 0 12	4.6 0.0 2.8	17.0 9.8 16.6	3.2
Rio Grande Alamitos Bernal Trail (B) Big Tesuque Cordova Elk Cabin Gallegos Peak Hopewell La Cueva North Costilla Palo Payrole Quemazon Rio En Medlo San Antonlo Slnk Sandoval Senorita Divide Taos Canyon Tres Ritos	2/27 2/25 2/25 2/25 2/26 2/23 2/26 2/25 2/25 2/25 2/26 2/25 2/27 2/25 2/27 2/25 2/25	2 10 0 8 0 5 28 6 0 7 9 18 4 3 4 14 0 0	0.8 2.2 0.0 1.8 0.0 1.4 7.8 1.7 0.0 1.4 2.4 4.4 0.7 1.0 1.1 3.3 0.0 0.0	8.6 4.4 9.0 13.7 5.0 10.4 22.5 11.4 5.0 9.3 14.5 12.0 12.3 11.6 7.5 14.9 5.9 8.0	5.5 8.8 3.2
Rio Hondo Taos Powderhorn	2/25	38	9.7	24.7	

NS-No eurvey. (8)-On adjacent drainage.

SAN MIGUEL, DOLORES, ANIMAS AND SAN JUAN WATERSHEDS IN COLORADO AND NEW MEXICO



YOUR WATER SUPPLY

SPRING AND SUMMER RUNOFF FORECASTS HAVE BEEN REDUCED SUBSTANTIALLY FROM LAST
MONTH. THEY NOW RANGE FROM A LOW OF 14 PERCENT OF AVERAGE ON THE MANCOS RIVER
TO 50 PERCENT OF AVERAGE ON THE SAN MICUEL RIVER. PRECIPITATION DURING FEBRUARY
WAS ONLY 47 PERCENT OF NORMAL BRINGING THE SEASONAL TOTAL TO 46 PERCENT OF
AVERAGE. A MAJOR STORM THE FIRST WEEK OF MARCH IMPROVED THE MOUNTAIN SNOWPACK
FROM 38 PERCENT OF NORMAL TO 43 PERCENT OF NORMAL OVER THE BASIN AS A WHOLE.
HOWEVER, POOR WATER SUPPLIES ARE STILL PREDICTED DUE TO THE LATENESS IN THE
CURRENT SNOWPACK SEASON.

STREAMFLOW FORECASTS (1000 Ac. Ft.) April - September

FORECAST POINT	Forecast	% of Average	1963-77 Average
Florida River at 8ondad			31.0
Animas River at Durango	200	47	425.0
Dolores River at Dolores	95	41	233.0
La Plata River at Hesperus	8	34	23.5
Los Pinos River at Bayfield (1)	100	49	204.0
Mancos River near Towaoc (2)	3	14	21.9
Inflow to Navajo River (1 & 3)	240	39	608.0
Piedra Creek at Arboles	70	35	201.0
San Juan River at Carracas	180	49	370.0
San Miguel River at Placerville	62	50	124.0

(1) Observed flow plus change in storage in Vallicita Beiervois. (2) March-July. (3) April-July.

		Perrod
STREAM or AREA	Spring	Late
Hermosa Creek West Dolores River Williams Creek	Fair Fair Fair	Poor Poor Poor

MARKET ANDREW AND AND FROM STORE BY POOL FAIL AVERAGE EN

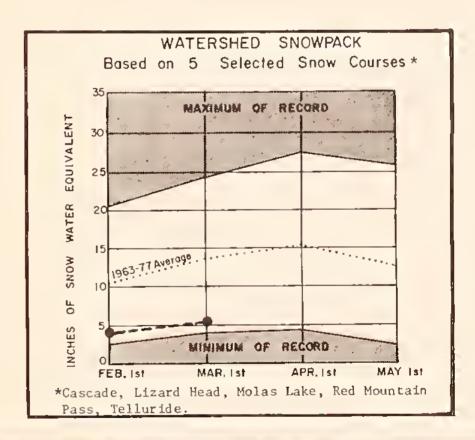
RESERVOIR STORAGE	(Thousan	d Ac. Ft	.) END OF	MONTH
Basin or Stream	Usable	U	sacte Sierag	e
RESERVOIR	Capacily	This	L 231	1963-77 Avelage
Croundhog Jackson Gulch Lemon Navajo Vallecito	22 10 40 1696 126	0 5 23 1254 59	8 1 19 1106 47	10 5 18 689 55

SUMMARY OF SHOW MEASUREMENTS ICOMPARISON WITH PREVIOUS YEARS)

SNOW COURSE MEASUREMBITS

SHOW COOKSE MEASUREMENTS	CURR	ENT INFORM	ATION	PAST RE	CORO
SNOW COURSE	OATE OF SURVEY	SNOW DEPTH (INCHES)	WATER CONTENT (INCHES)	HATER CO (INCHI LAST YEAR	AVG.
SAN JUAN-DOLORES BASIN Animas River					
Cascade Lemon Mineral Creek Molas Lake Purgatory Red Mt. Pass (B) Silverton Sub-Sta. Spud Mountain	2/26 2/27 2/26 2/26 2/27 2/26 2/26 2/26	8	3,5 1,3 4.1 1.8 8,0 12.1 1.0 6.4	18.5 18.8 16.8 26.8 28.7 12.1	
Dolores River Groundhog Houser Camp Lizard Head Lone Cone Ophir Loop Rico Telluride Trout Lake	3/01 2/26 2/26 2/24 2/23 2/26 2/23 2/23		4.8 1.5 6.2 7.4 5.0 0.6 3.4 3.8	15.2 20.0 20.2 16.3 14.5 8.9	13.9 13.9 7.2
San Juan River Chama Divide (B) Chamita (B) La Plata Mancos T-Down Upper San Juan Wolf Cr. Pass (B) Wolf Cr. Summit	2/25 2/25 2/26 2/26 2/25 2/25 2/21	0 12 15 21 41 36 38	0.0 2.8 3.3 4.8 12.8 10.6 12.6	9.8 16.6 35.5 29.7 43.1 35.5 35.2	7.6 16.2 16.6 24.6 21.8

NS-No survey.
(B)-On adjacent drainage.



WATER SUPPLY OUTLOOK BY MAJOR WATERSHED AREAS

-GUNNISON RIVER WATERSHED

Describes water supply conditions in Delta, Gunnison, Cimarron, Shavano, and Uncompangre Soil Conservation Districts.

-COLORADO RIVER WATERSHED

Describe water supply conditions in DeBeque, Plateau Valley, Mesa, Bookcliff, Eagle County, Middle Park, South Side, and Mt. Sopris Soil Conservation Districts.

-SOUTH PLATTE RIVER WATERSHED

Describes water supply conditions in Fort Collins, Big Thompson, Longmont, Boulder Valley, Jefferson, Teller-Park, Douglas County, Morgan, Kiowa, West Arapahoe, West Adams, East Adams, Platte Valley, Southeast Weld, and West Greeley Soil Conservation Districts. Also describes water supply conditions in Sedgwick, South Platte, Hoxton, Peetz, Podroni, Morgan, Rock Creek, and Yuma Soil Conservation Districts.

-YAMPA, WHITE AND NORTH PLATTE RIVERS WATERSHED

Describes water supply conditions In Yampa, Moffat, West Routt, East Routt, North Park, White River, and Douglas Creek Soil Conservation Districts.

-ARKANSAS RIVER WATERSHED

Describes water supply conditions in Lake County, Upper Arkansas, Fremont, Custer County Divide, Fountain Valley, Block Squirrel, Central Colorado, Turkey Creek, South Pueblo, Olney Boone, Cheyenne, Upper Huerfano, Spanish Peaks, Purgatoire River, Trinchera, Western Baca, Southeastern Boco, Two Buttes, Bent, Timpas, Notheast Prowers, Prowers, Kiowa County, West Otera, East Otera, Prairie, Hi Plains, and Double El Soil Conservation Districts.

-RIO GRANDE WATERSHED

Describes water supply conditions in Rio Grande, Center, Conejos, Mosca Hooper, and Costillo, Sail Conservation Districts. Also describes water supply conditions in UpperChama East Rio Arriba, Toos, Lindrith, Jemez, Sonta Fe-Pojcaque, Sondovol, Tijeras, Cuba and Edgewood Soil Conservation Districts.

-DOLORES, SAN JUAN, AND ANIMAS RIVERS WATERSHED

Describes water supply conditions in Son Miguel Basin, Dove Creek, Dolores, Mancos, LaPlata, Pine River, San Juan, Son Miguel Bosin, and Glade Park Soil Conservation Districts.